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EXAMINER	
ELPENORD, CANDAL	

ART UNIT	PAPER NUMBER
2616	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/730,390	MELVIN ET AL.	
	Examiner	Art Unit	
	CANDAL ELPENORD	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *May 04, 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's arguments filed May 04, 23008 have been fully considered but they are not persuasive.

Regarding claim 1, the Applicant alleged that combination of Yamada '820 and Homberg '802 fail to teach the claimed limitations.

In response, the Examiner respectfully disagrees with the Applicant assertion of the applied references because the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, the Examiner asserts that combination of Yamada '820 and Homberg '802 when considered as a whole clearly teaches the Applicant claimed invention.

In particular, "flow control request to a receiving port when transmit queue contains a number of message descriptors equal or greater than the high threshold of the associated transmitting port".

In response, the Examiner disagrees with the Applicant assertion since the Examiner interprets the predetermined threshold as disclosed by Yamada '820 as the high threshold, and the water or marking level of the queuing buffer that is below the

predetermined threshold level as the low threshold. Yamada '820 explicitly discloses sending a report condition to the input buffers when the occupancy of the output buffer exceeds the predetermined threshold, col. 4, lines 33-38). As stated above, the Examiner asserts that the threshold level below the predetermined level is interpreted as the low threshold of the queuing buffer.

The applicant alleged that the buffer occupancy signal sent when the buffer occupancy rises above the predetermined threshold is not equivalent to a flow control request.

In response, the Examiner would like to remind the Applicant that sending a report condition to the input buffers when the occupancy of the output buffer exceeds the predetermined threshold as suggested in col. 4, lines 33-38 is equivalent to flow control request.

The Examiner disagrees with the Applicant assertion that " It is absolutely and unambiguously clear, from Yamada's statements, that Yamada developed an ATM-switch system to avoid discarding messages. Thus, combining Yamada with an unrelated reference, such as Homberg, that does teach dropping of frames or messages, makes absolutely no sense, and would create a system opposite from both Yamada's disclosed system and Yamada's motivations for implementing Yamada's disclosed system" because Yamada '820 explicitly state that "various modifications will become possible for those skilled in the art", col. 5, lines 44-45.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies

("any of Figures 13A-J, Figure 7, or many other figures of the current application, reveals that, in the described embodiment of the current invention, multiple input and output buffers are always used within each input or output queue of the described network multiplexer") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

3. The Applicant alleged that Morgenstern '756 does not disclose transmit queue or receive queue associated with a transmitting port, a first and a second threshold associated with a transmit queue, no queue associated with the input ports, no port in Morgenstern '756 has a controller, transceivers, "memory not necessary a queue".

In response the Examiner disagrees with the Applicant assertions because Morgenstern '756 discloses a plurality of network devices having one or more transmitters and receivers (col. 4, lines 59-64-transmitters and receivers constitute transceiving means); transmit queue for each port (col. 4, lines 37-38); a controller (fig. 3, Controller 50) configured to control the operation of the input and output ports (col. 7, lines 54-57); a receive queue (fig. 3, Input Port with the memory, recited in col.7, lines 41-57). Morgenstern '756 further discloses a first and a second (high and low) (col. 5, lines 10-14, col. 5, lines 20-24, col. 9, lines 8-12). The queue has a memory component for storing data packet, frame or cell or PDU. That part of the Applicant argument is moot.

The Applicant further alleged that Morgenstern '756 does not disclose flow control.

In response, the Examiner respectively disagrees with the Applicant assertion because when the transmit queue length is greater than the transmit queue high threshold, a congestion state is declared then a call control is notified, and strops routing calls to the transmit port in the congestion state (col. 6, lines 13-24).

4. The applicant Alleged that combination of Morgenstern '756 and Robles '172 fail to teach the claimed limitations as recited in claims 1, 6. In other words, the combination of Morgenstern '756 and Robles '172 is not viable.

In response, the Examiner respectfully disagrees with the Applicant assertion because Morgenstern '756 discloses that many variations and modifications and other applications can be made to his invention.

In response, the Examiner respectfully disagrees with the Applicant assertion of the applied references because the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, the Examiner asserts that combination of Morgenstern '756 and Robles '172 when considered as a whole clearly teaches the Applicant claimed invention.

For those above reasons, The Examiner asserts that the applied references do in fact show that claimed invention is known to ordinary person skilled in the art at the time the invention was made, thus the rejections are maintained as follows.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. **Claim 1** is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al (US 5,455,820) in view of Homberg et al (US 6,661,802 B1).

Regarding claim 1, Yamada et al. discloses a method for initiating flow control ("Outputting a buffer occupancy level including a state signal", recited in col. 3, lines 40-52) in a network multiplexer (fig. 1-3, ATM Switch, recited in col. 3, lines 18-34) that forwards a message descriptor referencing a communications packet received by a receiving port to one or more transmit queues, each transmit queue (fig. 1, Input Buffer Selection 100N and 101, recited in col. 3, lines 18-28) associated with a transmitting port (fig. 1, ATM Input Line 10N, recited in col. 3, lines 18-28) which transmits communications packets queued to the transmit queue, the method comprising: providing each transmitting port (fig. ATM Input Line 10N and 10, recited in col. 3, lines 18-25) in the network multiplexer (fig. 1-3, ATM Switch, recited in col. 3, lines 18-34) with a high threshold ("predetermined threshold", recited in col. 4, lines 33-38) and a low threshold ("absent occupancy signal and decreases below the threshold" as the low threshold, recited in abstract, lines 12-26), when a message descriptor is queued to a transmit queue associated with a transmitting port, when the transmit queue currently contains a maximum number of message descriptors ("generating a buffer occupancy signal state signal when the buffer occupancy exceeds a predetermined threshold", recited in abstract, lines 12-22), sending a flow control request ("buffer occupancy signal", recited in col. 2, lines 41-46) to the receiving port (fig. 1, ATM Output Line 40 and 40N, recited in col. 3, lines 28-34) that received the communications packet

referenced by the queued message descriptor ("calculating buffer occupancy ratio on the basis of information of cell", recited in col. 3, lines 64-col. 4, lines 2).

Yamada et al. discloses all the claimed limitation with the exception of being silent with regard to the following features:

Regarding claim 1, when the transmit queue currently contains a maximum number of message descriptors, discard the message descriptor.

However, Homberg '802 from the same field of endeavor discloses the above claimed features:

regarding claim 1, when the transmit queue ("queue exceeding the high water mark", recited in abstract, lines 4-9) currently contains a maximum number of message descriptors ("data units and queue reaches its maximum length", recited in col. 2, lines 35-41 and abstract, lines 4-9) discard the message descriptor (fig. 16, "dropping of frames or data unit", recited in col. 2, lines 35-43).

In view of the above, it would have been obvious to one of ordinary skill in the art at the time the invention was to modify the features of Yamada et al. by using features as taught by Homberg et al. in order to provide congestion management by organizing queues as suggested in col. 2, lines 10-31.

9. **Claims 2-5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al (US 5,455,820) in view of Homberg et al (US 6,661,802 B1) as applied to claim 1 above, and further in view of Chiussi et al (US 5,701,292).

Regarding claim 2, Yamada '820 discloses the method ("Outputting a buffer occupancy level including a state signal", recited in col. 3, lines 40-52) further including when a message descriptor is queued to a transmit queue (fig. 1, Input Buffer Selection 100N and 101, recited in col. 3, lines 18-28) with a transmit port (fig. 1, ATM Input Line 10N, recited in col. 3, lines 18-28),

Regarding claim 3, Yamada '820 discloses the method ("Outputting a buffer occupancy level including a state signal", recited in col. 3, lines 40-52) further including: when a transmitting port transmits a packet referenced by a message descriptor ("receiving cells via switch and outputting the cells", recited in col. 3, lines 25-34) to a destination port (fig. 1, ATM Output port 40N, recited in col. 3, lines 25-34) releasing the message descriptor ("cells are fed from the buffer from occupancy level decreases", recited in abstract, lines 22-26).

Regarding claim 4, Yamada '820 discloses the method ("Outputting a buffer occupancy level including a state signal", recited in col. 3, lines 40-52) further including when a transmitting port transmit a packet referenced by a message descriptor ("receiving cells via switch and outputting the cells", recited in col. 3, lines 25-34) to a destination port (fig. 1, ATM Output port 40N, recited in col. 3, lines 25-34), releasing the message descriptor ("cells are fed from the buffer when occupancy level decreases below the threshold", recited in abstract, lines 22-26).

Homberg and Yamada disclose all the claimed limitation with the exception of being silent with regard to the claimed features:

Regarding claim 2, when a message descriptor is queued to a transmit queue associated with a transmitting port, when the transmit queue currently contains a number of message descriptors greater than or equal to the low threshold of the associated transmitting port but the number of message descriptors contained in the transmit queue exceeded or equaled the high threshold of the associated transmitting port more recently than the number of message descriptors contained in the transmit queue was equal to the low threshold of the associated transmitting port, sending a flow control request to the receiving port that received the communications packet referenced by the queued message descriptor.

Regarding claim 3, when the destination port currently contains a number of queued message descriptors equal to one less than the destination port's low threshold sending a release flow control request to any receiving ports to which a flow control request was sent while the transmit queue contained a number of message descriptors equal to or greater than the high threshold of the associated transmitting port.

Regarding claim 4, when the destination port currently contains a number of queued message descriptors one less than the destination port's low threshold, sending a release flow control request to any receiving ports to which a flow control request was sent while the transmit queue contained a number of message descriptors greater than or equal to the low threshold of the associated transmitting port.

Regarding claim 5, when a receiving port is flow controlled and receives a number of release flow control requests equal to the number of received flow control requests releasing flow control by the receiving port.

However, Chiussi '292 from the same field of endeavor discloses the above claimed features:

Regarding claim 2, when a message descriptor ("data rate information of sources", recited in col. 2, lines 52-59) is queued to a transmit queue ("queue register and transmitter", recited in col. 2, lines 47-56) associated with a transmitting port (fig. 3, Transmitter 8, recited in col. 5, lines 1-4 and "transmitter", recited in col. 2, lines 47-56), when the transmit queue currently contains a number of message descriptors greater than or equal to the low threshold of the associated transmitting port ("not equaled or exceeding the first threshold", recited in col. 30-40), but the number of message descriptors contained in the transmit queue exceeded or equaled the high threshold of the associated transmitting port ("data sources having transfer rate greater than or equal to the maximum", recited in col. 6, lines 40-52) more recently than the number of message descriptors ("data source identifier", recited in col. 2, lines 53-62) contained in the transmit queue was equal to the low threshold of the associated transmitting port, sending a flow control request to the receiving port ("transfer of an electronic code or resource management when sources have data transfer rate greater or equal to the maximum", recited in col. 6, lines 14-32) that received the communications packet referenced by the queued message descriptor ("data source identifier", recited in col. 2, lines 53-62).

Regarding claim 3, when the destination port (fig. 3, Receiver 7, recited in col. 5, lines 59-67) currently contains a number of queued message descriptors (fig. 3, Register 3, "data source identifier", recited in col. 5, lines 59 - col. 6, lines 1-5 and

"reference information or data transfer rates", recited in col. 4, lines 55-57) equal to one less than the destination port's low threshold ("lower rate", recited in col. 4, lines 61-67) sending a release flow control request ("transmitting an electronic code when the sources have a lower rate", recited in col. 4, lines 61-67 and col. 5, lines 1-4) to any receiving ports (fig. 3, Receiver 7, recited in col. 5, lines 59-67) to which a flow control request was sent while the transmit queue contained a number of message descriptors (fig. 3, Register 3, "data source identifier", recited in col. 5, lines 59 - col. 6, lines 1-5 and "reference information or data transfer rates", recited in col. 4, lines 55-57) equal to or greater than the high threshold ("congestion indicator exceeds a first threshold", recited in col. 4, lines 61-67) of the associated transmitting port (fig. 3, Transmitter 8, recited in col. 4, lines 58-67).

Regarding claim 4, when the destination port (fig. 3, Receiver 7, recited in col. 5, lines 59-67) currently contains a number of queued message descriptors (fig. 3, Register 3, "data source identifier", recited in col. 5, lines 59 - col. 6, lines 1-5) one less than the destination port's low threshold ("lower rate than the switch minimum data rate", recited in col. 2, lines 64-67), sending a release flow control request ("transmitting a Resource Management or an electronic code", recited in col. 2, lines 14-18) to any receiving ports (fig. 3, Receiver 7, recited in col. 5, lines 59-67) to which a flow control request was sent while the transmit queue contained a number of message descriptors (fig. 3, Register 3, "data source identifier", recited in col. 5, lines 59 - col. 6, lines 1-5) greater than or equal to the low threshold of the associated transmitting port ("congestion indicator not exceeding or equaled to first threshold", recited in col. 30-40).

Regarding claim 5, when a receiving port ("receiver receives electronic code from data sources", recited in col. 5, lines 59-67 and col. 6, lines 1-5) is flow controlled ("receiving an RM or electronic code to reduce the transfer rate", recited in col. 5, lines 22-29) and receives a number of release flow control requests equal to the number of received flow control requests ("data rate of source less than the switch maximum or the threshold then increase the data rate of each source", recited in col. 2, lines 33-44) releasing flow control by the receiving port ("increasing the rate upon receiving an electronic code", recited in col. 3, lines 53-65).

In view of the above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the features of Yamada '820 with Homberg '802 by using features as taught by Chiussi 292 in order to control the data rate transfer of data sources in an ATM switch as suggested in col. 2, lines 3-13.

10. **Claims 1, 6-9, and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgenstern et al (US 6,614,756 B1) in view of Robles et al (US 6,282,172 B1).

Regarding claim 1, Morgenstern et al. discloses a method ("detecting a signaling congestion situation", recited in col. 4, lines 23-36) for initiating flow control ("detecting signaling congestion situation", recited in col. 4, lines 23-36) in a network multiplexer (fig. 1 and fig. 3, ATM Network with plurality of ATM Switches, recited in col. 3, lines 14-22) that forwards a message descriptor referencing a communications packet received by a receiving port to one or more transmit queues, each transmit

queue (fig. 3, Memory 48, recited in col. 7, lines 41-60, Noted: each port transmit queue, col. 4, lines 37-40) associated with a transmitting port (fig. 3, Input Port 40, recited in col. 7, lines 41-57) which transmits communications packets ("transmitting signaling messages", recited in col. 7, lines 20-29) queued to the transmit queue ("storing of signal messages", recited in col. 7, lines 58-66, Noted: each port transmit queue, col. 4, lines 37-40), the method ("detecting a signaling congestion situation", recited in col. 4, lines 23-36) comprising: providing each transmitting port (fig. 3, Input Port 40, recited in col. 7, lines 41-60) in the network multiplexer (fig. 1 and fig. 3, ATM Network with plurality of ATM Switches, recited in col. 3, lines 14-22) with a high threshold ("first threshold and upper transmit upper queue", recited in col. 5, lines 10-20) and a low threshold ("second threshold", recited in col. 5, lines 20-34); when a message descriptor is queued to a transmit queue ("transmit queue with port", recited in col. 6, lines 7-15) associated with a transmitting port, when the transmit queue ("level of the transmit queue", recited in col. 4, lines 37-45) currently contains a maximum number of message descriptors ("level of messages passing the predetermined levels", recited in col. 4, lines 37-45), and when the transmit queue ("length of transmit queue exceeding a first predetermined level", recited in col. 4, lines 60 - col. 5, lines 9) currently contains a number of message descriptors equal to or greater than the high threshold ("first threshold and upper transmit upper queue", recited in col. 5, lines 10-20) of the associated transmitting port , sending a flow control request ("declaring a port to be in congested state", recited in col. 4, lines 60 - col. 5, lines 9 and "signaling notification", recited in col. 9, lines 51-58) receiving port that received the communications packet

referenced by the queued message descriptor ("declaring a port to be in congested state", recited in col. 4, lines 60 - col. 5, lines 9 and "signaling notification", recited in col. 9, lines 51-58).

Regarding claim 6, Morgenstern et al. discloses a network multiplexer system (fig. 3, ATM Switch, recited in col. 7, lines 41-57) that links physically separate network media (fig. 1, End Station A and End Station B, recited in col. 2, lines 63 - col. 3, lines 3) by forwarding packets received from each network medium (fig. 1, End Station A and End Station B, recited in col. 2, lines 63 - col. 3, lines 3) to a number of network media (fig. 1, End Station A and End Station B, recited in col. 2, lines 63 - col. 3, lines 3) , the network multiplexer system (fig. 3, ATM Switch, recited in col. 7, lines 41-57) comprising: a number of ports (fig. 3, Plurality of input and output ports, recited in col.7, lines 41-57), each port (fig. 3, Input Port 40 and Output Port 44, recited in col. 7, lines 41-57) having a transceiver ("transmitters and receivers", recited in col. 4, lines 60-66) and a communications controller (fig. 3, Controller 50, recited in col. 7, lines 431-57); a memory (fig. 3, Memory 48, recited in col. 7, lines 41-57); an internal bus (fig. 3, Switching Matrix 42, recited in col. 7, lines 41-57) for transferring packets ("transmitting signaling messages from source to destination", recited in col. 4, lines 29-31) from ports (fig. 3, Plurality of input and output ports, recited in col.7, lines 41-57) to memory and from memory to ports(fig. 3, Plurality of input and output ports, recited in col.7, lines 41-57 and "controller couples to memory for configuring ports", recited in col. 7, lines 54-60); a receive queue (fig. 3, Input Port with the memory, recited in col.7, lines 41-57) and a transmit queue port ("transmit queue with port", recited in col. 6, lines 7-15)

associated with each port ("transmit queue with port", recited in col. 6, lines 7-15) that contain message descriptors ("number of messages", recited in col. 8, lines 6-9) that each references a communication packet ("signaling messages or calls", recited in col. 4, lines 23-36 and col. 4, lines 37-40) stored in memory (fig. 3, Memory 48, recited in col. 7, lines 41-57); a high threshold ("first threshold and upper transmit upper queue", recited in col. 5, lines 10-20) and a low threshold (noted: low threshold, col. 9, lines 8-12, "second threshold", recited in col. 5, lines 20-34) associated with each transmit queue ("transmit queue, recited in col. 5, lines 10-30); an indication of ports to which flow control requests ("signaling of congestion state in transmit queue", recited in col. 7, lines 30-35) have been made associated with each port (fig. 3, Input Port 40 and Output Port 44, recited in col. 7, lines 41-57); and an indication of the number of flow control requests ("signaling of congestion state in transmit queue", recited in col. 7, lines 30-35) made to a port associated with each port (fig. 3, Input Port 40 and Output Port 44, recited in col. 7, lines 41-57).

Regarding claim 8, Morgenstern et al. discloses the network multiplexer (fig. 3, ATM Switch, recited in col. 7, lines 41-57) wherein, when a message descriptor ("signaling message (PDU) ", recited in col. 7, lines 21-29 and 50-66) is forwarded to a port for transmission, and when the transmit queue of the port ("transmit queue with port", recited in col. 6, lines 7-15) contains a number of message descriptors ("signaling messages", recited in col. 8, lines 6-14) greater than or equal to the high threshold associated with the port ("level of messages passing the predetermined levels", recited in col. 4, lines 37-45), a flow control request is sent to the port that received the

communications packet reference by the message descriptor ("declaring a port to be in congested state", recited in col. 4, lines 60 - col. 5, lines 9 and "signaling notification", recited in col. 9, lines 51-58) and a indication that a flow control request has been sent to the port that received the communications packet is saved by the port to which the message descriptor is forwarded ("storing of signal messages", recited in col. 7, lines 58-66).

Regarding claim 9, the network multiplexer (fig. 3, ATM Switch, recited in col. 7, lines 41-57), when a message descriptor ("transmitting signal messages", recited in col. 7, lines 21-29) is forwarded to a port for transmission ("source to destination", recited in col. 7, lines 21-29 and fig. 3), when the transmit queue ("transmit queue with port", recited in col. 6, lines 7-15) and fig. 3, Transmit Queue 46, recited in col. 4, lines 37-40) of the port ("transmit queue with port", recited in col. 6, lines 7-15) has contained a number of message descriptors ("level of messages passing the predetermined levels", recited in col. 4, lines 37-45), greater than or equal to the high threshold ("level of messages passing the predetermined levels", recited in col. 4, lines 37-45 and "first threshold and upper transmit upper queue", recited in col. 5, lines 10-20) associated with the port more recently than the transmit queue of the port ("transmit queue with port", recited in col. 6, lines 7-15) has contained a number of message descriptors less than the low threshold associated with the port ("transmit queue length less than the low threshold ", recited in col. 10, lines 8-36-the queue length is related to the number of messages, recited in col. 8, lines 49-67- col. 9, lines 2-12), a flow control request ("notifying that a particular port is in congestion state", recited in col. 9, lines 59-67 and

col. 10, lines 1-7) is sent to the port that received the communications packet reference by the message descriptor and a indication that a flow control request has been sent to the port ("notifying that a particular port is in congestion state", recited in col. 9, lines 59-67 and col. 10, lines 1-7), that received the communications packet is saved by the port to which the message descriptor is forwarded ("signaling messages placed in transmit queue", recited in col. 7, lines 58-66).

Regarding claim 10, Morgenstern et al. discloses the network multiplexer (fig. 3, ATM Switch, recited in col. 7, lines 41-57) wherein, when a port removes a message descriptor ("taking a port out from the congestion state when the signaling queue length drops below first threshold", recited in col. 5, lines 60 – col. 6, lines 1-3) from the transmit queue ("transmit queue with port", recited in col. 6, lines 7-15) associated with the port, and when the number of messages contained in the transmit queue currently equal one less than the low threshold ("taking a port out from the congestion state when the signaling queue length drops below the threshold", recited in col. 5, lines 60 – col. 6, lines 1-3) associated with the port, a release flow control message is sent to each port referenced by indications saved by the port ("taking a port out from the congestion state when the signaling queue length drops below first threshold", recited in col. 5, lines 60 – col. 6, lines 1-3).

Morgenstern '756 discloses all the claimed limitation with the exception of being silent with regard to the following features:

Regarding claim 1, when the transmit queue contains a maximum number of message descriptors, discarding the message descriptor.

Regarding claim 7, wherein when a message descriptor is forwarded to a port for transmission, and when the transmit queue of the port is full, the message descriptor is dropped.

However, Robles '172 from the same field of endeavor discloses the above claimed features:

Regarding claim 1, when the transmit queue (fig. 7, TCP Input buffer 150, recited in col. 9, lines 37-55) currently contains a maximum ("Input buffer being full", recited in col. 12, lines 9-33) number of message descriptors ("input switch buffer is at high water mark or buffer capacity the packet is discarded", recited in col. 12, lines 9-33) discard the message descriptor ("input switch buffer is at high water mark or buffer capacity the packet is discarded", recited in col. 12, lines 9-33).

Regarding claim 7, wherein when a message descriptor is forwarded ("received of an IP data packet", recited in col. 12, lines 9-14) to a port (fig. 7, Input Port 147, recited in col. 9, lines 33-37) for transmission , and when the transmit queue (fig. 7, TCP Input buffer 150, recited in col. 9, lines 37-55) of the port (fig. 7, Input Port 147, recited in col. 9, lines 33-37) is full ("input switch buffer is at high water mark or buffer capacity, then the packet is discarded", recited in col. 12, lines 9-33), the message descriptor is dropped ("input switch buffer is at high water mark or buffer capacity, then the packet is discarded", recited in col. 12, lines 9-33).

In view of the above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the features of Morgenstern '756 by using

features as taught by Robles '172 in order to provide flow control of data receives from a communication medium as suggested in col. 2, lines 32-49.

11. **Claims 2-3, 4-5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Morgenstern et al. in view of Robles et al. as applied to **claims 1, 6** above, and further in view of Chiussi et al (US 5,701,292).

Regarding claim 2, Morgenstern '756 discloses the method ("detecting a signaling congestion situation", recited in col. 4, lines 23-36), when a message descriptor ("storing of signal messages", recited in col. 7, lines 58-66) is queued to a transmit queue (fig. 3, Transmit Queue 46, recited in col. 4, lines 37-40) associated with a transmitting port ("transmit queue with port", recited in col. 6, lines 7-15).

Regarding claim 3, Morgenstern '756 discloses the method ("detecting a signaling congestion situation", recited in col. 4, lines 23-36) further including when a transmitting port (fig. 3, Input Port 40, recited in col. 7, lines 41-50) transmits a packet referenced by a message descriptor ("transmitting signal messages", recited in col. 4, lines 29-32) to a destination port (fig. 3, Output Port 44, recited in col. 7, lines 41-57), releasing the message descriptor ("resumes routing calls", recited in col. 10, lines 37-42).

Regarding claim 4, Morgenstern '756 discloses the method ("detecting a signaling congestion situation", recited in col. 4, lines 23-36) further including: when a transmitting port (fig. 34, Input Port 40, recited in col. 7, lines 41-57) transmits a packet referenced by a message descriptor ("transmits of signaling messages", recited in col.

7, lines 21-29), releasing the message descriptor ("resumes routing calls", recited in col. 10, lines 37-42) and when the destination port (fig. 3, Output Port 44, recited in col. 7, lines 41-57) currently contains a number of queued message descriptors one less than the destination port's low threshold ("transmit queue length less than the low threshold ", recited in col. 10, lines 8-36), sending a release flow control request ("taking an out port currently in the congestion state out of the congestion state", recited in col. 5, lines 54-67 and col. 6, lines 1-3) to any receiving ports to which a flow control request ("port currently in the congested state", recited in col. 5, lines 54-67 and col. 6, lines 1-3) was sent while the transmit queue contained a number of message descriptors greater than or equal to the low threshold of the associated transmitting port ("transmit queue length less than the low threshold ", recited in col. 10, lines 8-36).

Regarding claim 5, Morgenstern '756 discloses the method ("detecting a signaling congestion situation", recited in col. 4, lines 23-36) further including: when a receiving port is flow controlled ("port currently in the congested state", recited in col. 5, lines 54-67 and col. 6, lines 1-3) and receives a number of release flow control requests ("clearing flag and sending message", recited in col. 10, lines 37-42) equal to the number of received flow control requests, releasing flow control by the receiving port (fig. 5, Steps leading to the release of a port from a congested state, recited inn col. 10, lines 7-42).

Morgenstern '756 and Robles '172 disclose all the subject matter of the claimed invention with the exception of being silent with respect to claimed features:

Regarding claim 2, when a message descriptor is queued to a transmit queue associated with a transmitting port, when the transmit queue currently contains a number of message descriptors greater than or equal to the low threshold of the associated transmitting port but the number of message descriptors contained in the transmit queue exceeded or equaled the high threshold of the associated transmitting port more recently than the number of message descriptors contained in the transmit queue was equal to the low threshold of the associated transmitting port, sending a flow control request to the receiving port that received the communications packet referenced by the queued message descriptor

Regarding claim 3, when the destination port currently contains a number of queued message descriptors equal to one less than the destination port's low threshold sending a release flow control request to any receiving ports to which a flow control request was sent while the transmit queue contained a number of message descriptors equal to or greater than the high threshold of the associated transmitting port.

However, Chiussi '292 from the same field of endeavor discloses the above claimed features:

Regarding claim 2, when a message descriptor ("data rate information of sources", recited in col. 2, lines 52-59) is queued to a transmit queue ("queue register and transmitter", recited in col. 2, lines 47-56) associated with a transmitting port (fig. 3, Transmitter 8, recited in col. 5, lines 1-4 and "transmitter", recited in col. 2, lines 47-56), when the transmit queue currently contains a number of message descriptors greater than or equal to the low threshold of the associated transmitting port ("not equaled or

exceeding the first threshold", recited in col. 30-40), but the number of message descriptors contained in the transmit queue exceeded or equaled the high threshold of the associated transmitting port ("data sources having transfer rate greater than or equal to the maximum", recited in col. 6, lines 40-52) more recently than the number of message descriptors ("data source identifier", recited in col. 2, lines 53-62) contained in the transmit queue was equal to the low threshold of the associated transmitting port, sending a flow control request to the receiving port ("transfer of an electronic code or resource management when sources have data transfer rate greater or equal to the maximum", recited in col. 6, lines 14-32) that received the communications packet referenced by the queued message descriptor ("data source identifier", recited in col. 2, lines 53-62).

Regarding claim 3, when the destination port (fig. 3, Receiver 7, recited in col. 5, lines 59-67) currently contains a number of queued message descriptors (fig. 3, Register 3, "data source identifier", recited in col. 5, lines 59 - col. 6, lines 1-5 and "reference information or data transfer rates", recited in col. 4, lines 55-57) equal to one less than the destination port's low threshold ("lower rate", recited in col. 4, lines 61-67) sending a release flow control request ("transmitting an electronic code when the sources have a lower rate", recited in col. 4, lines 61-67 and col. 5, lines 1-4) to any receiving ports (fig. 3, Receiver 7, recited in col. 5, lines 59-67) to which a flow control request was sent while the transmit queue contained a number of message descriptors (fig. 3, Register 3, "data source identifier", recited in col. 5, lines 59 - col. 6, lines 1-5 and "reference information or data transfer rates", recited in col. 4, lines 55-57) equal to or

greater than the high threshold ("congestion indicator exceeds a first threshold", recited in col. 4, lines 61-67) of the associated transmitting port (fig. 3, Transmitter 8, recited in col. 4, lines 58-67).

In view of the above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the features of Morgenstern '756 with Robles '172 by using features as taught by taught by Chiussi '292 in order to control the data rate transfer of data sources in an ATM switch as suggested in col. 2, lines 3-13.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Erimli et al (US 6,405,258 B1), Kalkunte et al (US 6,115,356), Loughran et al (US 6,570,848 B1) and Willis et al (US 6,052,376).

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CANDAL ELPENORD whose telephone number is (571)270-3123. The examiner can normally be reached on Monday through Friday 7:30AM to 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Bin Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Candal Elpenord/
Examiner, Art Unit 2616

/Kwang B. Yao/

Supervisory Patent Examiner, Art Unit 2616